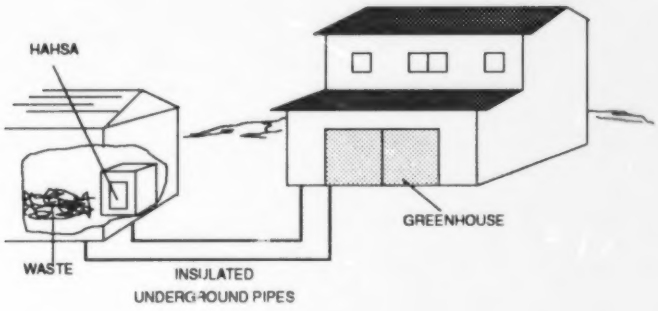
ENERGAIN

Alternative Fuels

A report on the Small Scale Energy Demonstration Program

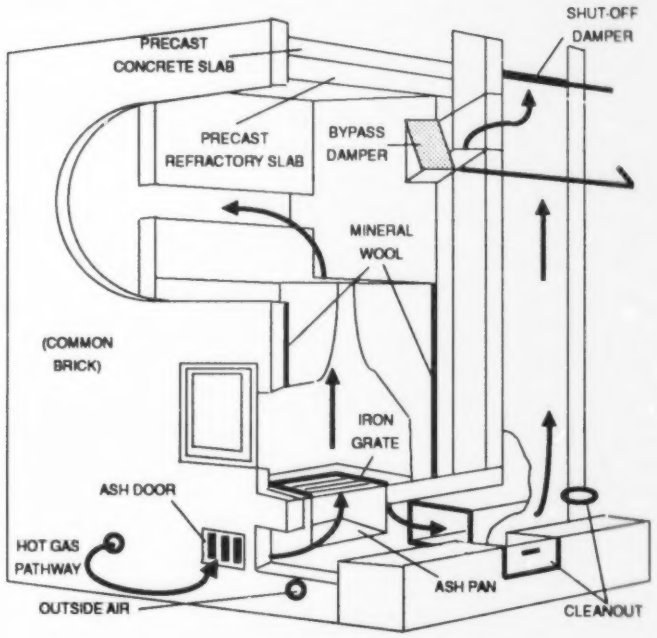
Waste Wood



The CREDA program funded two waste wood heating projects. The first was a Heating and Heat Storage Apparatus (HAHSA) used by Mr. and Mrs. George Van Koetsveld of Deer Lake to supply heat to their commercial greenhouse. The HAHSA was intended to burn a variety of fuels, including wood slabs, paper, wood chips and certain forms of garbage, and transfer the heat to the greenhouse by means of circulating water. At first, the system worked well, but after two years, equipment failures stopped the operation. The Van Koetsvelds are considering better quality equipment to achieve the maximum potential of the design.

A second waste wood project involved the harvesting of trees damaged in a forest fire. Delays, caused by inclement weather and equipment problems, made this venture too expensive without continuing government subsidy, and it was discontinued after one year. There are now successful commercial waste wood harvesters in the same region converting wood from the fire-damaged area into wood chips for various users.

Heat Storage Fireplace



A Finnish fireplace is a specially-built unit using superheated gases, generated by burning wood in the firebox, to heat its masonry structure. After the fire cools, heat is released to the house by convection, over an 8 to 12 hour period. This design allows a hot fire at the beginning, and reduces creosote buildup.

Michael Mason of Paradise installed a fireplace of this type shortly before selling his home. The new owner reports heating the entire house with the fireplace, using approximately $400 worth of wood annually. This is less than the initial estimate. The owner reports that very little maintenance is required to keep the fireplace working properly. The total cost of the system was $7400, and annual savings of about $1000 give a simple payback period of 7.4 years.

These projects were assisted by the Small Scale Energy Demonstration Program, which was part of CREDA, the Canada/Newfoundland Conservation and Renewable Energy Demonstration Agreement, funded by Energy, Mines and Resources Canada (80%) and the Newfoundland Department of Mines and Energy (20%).

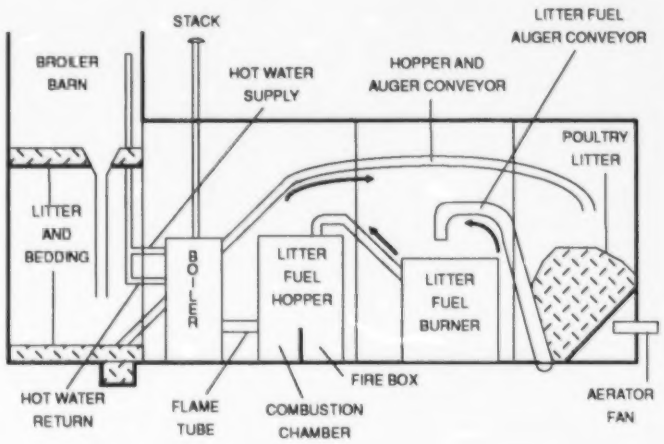
Department of Mines and Energy
Government of Newfoundland and Labrador
Hon Rex Gibbons, Ph. D., Minister

90-03791/

Chicken Litter

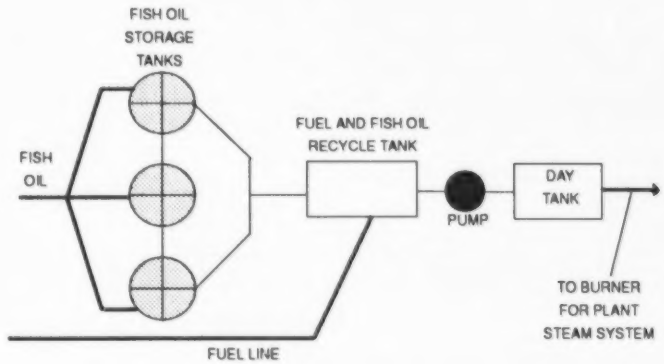
Two commercial poultry farms in Newfoundland have established litter burners, one at Howley on the West coast, the other in Bellevue, Trinity Bay. Each assembly cost approximately $24,000, with expected paybacks of only 2 years. The unit at Howley produced exceptionally high amounts of heat, but, as a result of environmental concerns about the operation of the burner, it is now used intermittently. The chicken litter burner at Bellevue never achieved full operation.

Environmental impact must be considered in waste fuel projects, and there must be a committment by the operators to continue beyond the government subsidy period, if real energy and dollar savings are to occur.



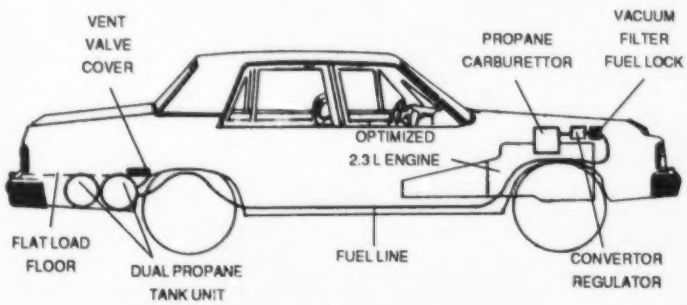
Fish Oil

A low pressure steam boiler at the Gaultois Fish Plant was converted to burn a mixture of fish oil and fuel oil. The boiler was incorporated into regular plant operations for about two years, and paid for itself within the first year of operation. The heating plant was converted back to fuel oil when the price of fish oil rose, and it became more economical to sell it rather than burn it as fuel. This situation may reverse again in the future.



Propane

The provincial Department of Transportation purchased a propane-powered car for testing and evaluation. The tests demonstrated that this type of vehicle was not economical, as it consumed more fuel per kilometer travelled than comparable gasoline models, while using a fuel which cost approximately the same as gasoline. However, since that time, propane prices have dropped about one third in Newfoundland, so the economic viability of such a vehicle would be much better now. The scarcity of propane refueling stations in the province would still be a problem for many operators.



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